CLAIMS

What is claimed is:

1. A method for determining code transmit power in a time division duplex communication system, comprising:

a) obtaining a number of codes in a downlink and a maximum allowed dynamic range;

b) determining an upper bound and a lower bound of a signal to interference ratio (SIR) of each code based on a block error rate (BLER) requirement;

c) computing a load contributed by each code;

d) summing the load to obtain a current total load;

e) determining a limit for a sum of upper bound code transmit power based on a current load;

f) determining a code with the highest upper bound SIR;

g) employing the upper bound code transmit power of the code having the highest upper bound SIR;

h) determining a desired relative ratio between the upper bound code transmit power of each code and a reference;

i) determining the upper bound transmit power of each code based on a sum of the upper bound code transmit power; and

j) setting a lower bound transmit power for each code based on a minimum Node B carrier power.

2. The method of claim 1, further comprising:

adjusting code transmit powers to lie within a dynamic range.

3. The method of claim 1, wherein step (a) further comprises:

obtaining a multi-user detector (MUD) efficiency factor and average inter-intracell interference ratio and a maximum allowed load in downlink.

4. The method of claim 1, wherein step (b) further includes selecting an SIR target corresponding to an SIR in a worst case as the upper bound.

5. The method of claim 1, wherein step (b) further includes selecting an SIR target corresponding to an SIR in a best case.

6. A method for determining code transmit power in a frequency division duplex communication system, comprising:

a) obtaining a number of codes in a downlink and a maximum allowed load in the downlink;

b) determining an upper bound and a lower bound of a signal to interference ratio (SIR) of each code based on a block error rate (BLER) requirement;

c) computing a load contributed by each code;

d) summing the load to obtain a current total load;

e) determining a limit for a sum of upper bound code transmit power based on a current load;

f) determining a code with a highest upper bound SIR;

g) employing the upper bound code transmit power of the code having the highest upper bound SIR;

h) determining a desired relative ratio between the upper bound code transmit power of each code and a reference;

i) determining the upper bound transmit power of each code based on a sum of the upper bound code transmit power; and

j) setting a lower bound transmit power for each code based on a minimum Node B carrier power.

7. The method of claim 6, further comprising:

adjusting code transmit powers to lie within a dynamic range.

8. The method of claim 6, wherein step (a) further comprises:

obtaining a maximum allowed dynamic range, an orthogonal factor, and an average inter-intracell interference ratio.

9. The method of claim 6, wherein step (b) further includes selecting an SIR target corresponding to an SIR in a worst case as the upper bound.

10. The method of claim 6, wherein step (b) further includes selecting an SIR target corresponding to an SIR in a best case.

11. A method for determining code transmit power, comprising:

a) obtaining a number of codes in a downlink in a maximum allowed dynamic range;

b) determining a lower bound and an upper bound signal-to-interference ratio (SIR) of each code based on a block error rate (BLER) criteria;

c) determining a code with a highest upper bound SIR and establishing its upper bound transmit code power as a reference;

d) determining a desired relative ratio between each code upper bound transmit power and the reference;

e) determining an upper bound transmit power of each code based on a constraint of a maximum Node B carrier power; and

f) setting a lower bound transmit power for each code at a minimum Node B carrier power.

12. The method of claim 11, wherein step (b) further includes selecting an SIR target corresponding to an SIR in a worst case as the upper bound.

13. The method of claim 11, wherein step (b) further includes selecting an SIR target corresponding to an SIR in a best case.

14. Apparatus for determining code transmit power in a time division duplex communication system comprising:

means for obtaining a number of codes in a downlink and a maximum allowed load in the downlink;

means for determining an upper bound and a lower bound of a signal to interference ratio (SIR) of each code based on a block error rate (BLER) requirement;

means for computing a load contributed by each code;

means for summing the load to obtain a current total load;

means for determining a limit for a sum of upper bound code transmit power based on the current load;

means for determining a code with the highest upper bound SIR;

means for employing the upper bound code transmit power of the code having the highest upper bound SIR;

means for determining a desired relative ratio between each code upper bound transmit power and a reference;

means for determining an upper bound transmit power of each code based on a sum of the upper bound code transmit power; and

means for setting a lower bound transmit power for each code based on a minimum Node B carrier power.

15. The apparatus of claim 14, further comprising:

means for adjusting the code transmit powers to lie within a dynamic range.

16. The apparatus of claim 14, wherein said means for obtaining further comprises:

means for obtaining a maximum allowed dynamic range, a multiple user detector (MUD) efficiency factor, and an average inter-intracell interference ratio.

17. Apparatus for determining code transmit power in a frequency division duplex communication system, comprising:

means for obtaining a number of codes in a downlink and a maximum allowed load in downlink;

means for determining an upper bound and a lower bound of a signal to interference ratio (SIR) of each code based on a block error rate (BLER) requirement;

means for computing a load contributed by each code;

means for summing the load to obtain a current total load;

means for determining a limit for a sum of upper bound code transmit power based on the current load;

means for determining a code with the highest upper bound SIR;

means for employing the upper bound code transmit power of the code having the highest upper bound SIR;

means for determining a desired relative ratio between the code upper bound transmit power of each code and a reference;

means for determining the upper bound transmit power of each code based on a sum of the upper bound code transmit power; and

means for setting a lower bound transmit power for each code based on a minimum Node B carrier power.

18. The apparatus of claim 17, further comprising:

means for adjusting the code transmit powers to lie within a dynamic range.

19. The apparatus of claim 17, wherein said means for obtaining further comprises:

means for obtaining a maximum allowed dynamic range, an orthogonal factor and an average inter-intracell interference ratio.

20. Apparatus for determining code transmit power, comprising:

means for obtaining a number of codes in a downlink in a maximum allowed dynamic range;

means for determining a lower bound and an upper bound signal-to-interference ratio (SIR) of each code based on a block error rate (BLER) criteria;

means for determining the code with a highest upper bound SIR and establishing its upper bound transmit code power as a reference;

means for determining a desired relative ratio between the upper bound code transmit power of each code and the reference;

means for determining an upper bound transmit power of each code based on a constraint of a maximum Node B carrier power; and

means for setting a lower bound transmit power for each code at a minimum Node B carrier power.